

Claims:

1. A spray dispenser assembly for the dispensing of liquids suitable for use in clean-room environments

5 comprising

(a) a collapsible liquid impermeable vessel having an open end comprising a neck portion provided with a collar that is more rigid than the vessel;

10 (b) extraction means for extracting liquid from the vessel and dispensing the liquid as a spray; and

(c) seal means arranged in sealing position between the extraction means and the vessel, the seal means being so arranged that the collar of the vessel sealingly engages with the seal means, the vessel is substantially sealed to 15 the extraction means, and the ingress of air into the vessel is substantially inhibited;

the seal means and extraction means being arranged such that the extraction means is operable to dispense liquid from the vessel whilst the seal means is in a 20 sealing position.

2. A spray dispenser assembly according to claim 1, wherein the vessel is at least partially filled with a liquid suitable for use in a cleanroom environment.

3. A spray dispenser assembly according to claim 1 or 25 claim 2, wherein the vessel is at least partially filled with a liquid chosen from one or more of a sterile liquid, a reactive liquid, a sterile alcohol and a biocide.

4. A spray dispenser assembly according to any preceding claim, in which the collar has been formed separately from 30 the neck portion and joined thereto around the collar circumference.

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5. A spray dispenser assembly according to any preceding claim, in which the collar has been inserted into the neck portion and welded around the full collar circumference.

6. A spray dispenser assembly according to claim 5, wherein the welding of the collar has been performed a plurality of times by a welding apparatus, the orientation of the collar and neck portion in the welding apparatus being changed between each welding process so that a complete and secure circumferential weld is formed.

7. A spray dispenser assembly according to any preceding claim, in which the vessel comprises two sheets of plastics material welded together at their edges to form a substantially cylindrical vessel providing a neck end with an open neck portion disposed at one end thereof, with a collar disposed therein, and a closed end opposite the neck end.

8. A spray dispenser assembly according to any one of claims 5 to 7, in which excess material is removed from around the neck portion prior to welding the collar thereto.

9. A spray dispenser assembly according to any preceding claim, in which the closed end opposite the neck end is substantially curved.

10. A spray dispenser assembly according to any preceding claim, in which the vessel comprises plastics material which is inert, even upon irradiation or contact with biocides or other liquids that it may be used to contain.

11. A spray dispenser assembly according to any preceding claim, in which the collar and neck portion are made from the same material.

12. A spray dispenser assembly according to any preceding claim, in which the extraction means includes a dispensing line extending through the seal means and inside the

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vessel, the dispensing line being gripped in sealing engagement with a bore or aperture provided through the seal means.

13. A spray dispenser assembly according to any preceding  
5 claim, in which the vessel collapses from an expanded state to an increasingly collapsed state as liquid is extracted from the vessel.

14. A spray dispenser assembly according to any preceding  
10 claim further comprising support means for supporting the vessel.

15. A spray dispenser assembly according to claim 14, in which the support means includes an opening or support neck for locating the extraction means, and the opening/neck is configured to cooperate in sealing engagement with the  
15 vessel.

16. A spray dispenser assembly according to claim 15, in which the collar has an annular lip which rests upon the opening or support neck of the support means.

17. A spray dispenser assembly according to any one of  
20 claims 14 to 16, in which the support means comprises a vent permitting air inside the support means, but externally of the vessel, to exist at ambient atmospheric pressure.

18. A collapsible liquid impermeable vessel for use in a  
25 spray dispenser assembly in accordance with any preceding claim,

the vessel having an open end comprising a neck portion provided with a collar that is more rigid than the vessel;

30 the collar being adapted to sealingly engage with the seal means provided between the extraction means of the spray dispenser assembly and the vessel.

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19. A kit comprising a vessel according to claim 18 and seal means for sealing engagement therewith.

20. A kit according to claim 19 comprising extraction means for extracting liquid from the vessel and dispensing  
5 the liquid as a spray, and support means for the vessel, wherein the seal means is able to sealingly engage the vessel and extraction means.

21. A kit according to claim 19 or claim 20, wherein the extraction means is in the form of a conventional pump  
10 dispenser trigger assembly, the sealing means is in the form of a bung adapted for sealing engagement with the vessel and having a bore therein adapted to sealingly engage with a dip tube of the trigger assembly, and the support means is in the form of a support container.

15 22. A method of manufacturing a vessel according to claim 18, comprising a step of welding two sheets of plastic material together.

23. A method of manufacturing a vessel according to claim 18, comprising a step of welding the collar to the neck  
20 portion.